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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/722,950	11/27/2000	Richard E. Smalley	11321-P002DI	5035
47744	7590	01/31/2006	EXAMINER	
ROSS SPENCER GARSSON WINSTEAD SECHREST & MINICK P.C. P. O. BOX 50784 DALLAS, TX 75201			COLE, ELIZABETH M	
			ART UNIT	PAPER NUMBER
			1771	

DATE MAILED: 01/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 09/722,950	Applicant(s) SMALLEY ET AL.	
	Examiner Elizabeth M. Cole	Art Unit 1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-51 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 35-51 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 35-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 35-36 of U.S. Patent No. 6,645,455. Although the conflicting claims are not identical, they are not patentably distinct from each other because each claims a parallel array of nanotubes which is referred to as a rope in the instant application.

3. Claims 35-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 12-24 of U.S. Patent No. 6,899,945. Although the conflicting claims are not identical, they are not patentably distinct from each other because discloses ropes or arrays of carbon nanotubes.

4. With regard to copending Application No. 10/426,578, the examiner mistakenly listed application number 10/426,478 rather than 10/426,578. Applicant's terminal disclaimer employed the correct number and is accepted.

5. Claims 35-51 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 68 of copending

Application No. 10/730,630. Although the conflicting claims are not identical, they are not patentably distinct from each other because each claims ropes formed from carbon nanotubes.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

Claim Rejections - 35 USC § 103

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 35-51 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over “Growth morphologies during cobalt-catalyzed single-shell carbon nanotube synthesis”. “Growth morphologies” discloses a material which comprises all single wall carbon nanotubes wherein the nanotubes are in the form of web and/or strings which correspond to the claimed felt/mat and rope. See page 509, last three lines; page 515, first full paragraph. The nanotubes have diameters of about 1.2 –1.3 nm which corresponds to the

claimed diameter of about 1.3 nanometers which corresponds to about 13 Angstroms. With regard to claim 45, while "Growth morphologies" does not disclose the recited method of forming the ropes, claim 45 is drawn to a product. Product by process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "Even though product - by process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product - by - process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe , 227 USPQ 964, 966 (Fed. Cir. 1985).

Once the Examiner provides a rationale tending to show that the claimed product appears to be the same or similar to that of the prior art, although produced by a different process, the burden shifts to applicant to come forward with evidence establishing an unobvious difference between the claimed product and the prior art product. In re Marosi, 218 USPQ 289, 292 (Fed. Cir. 1983).

The use of 35 USC 102/103 rejections for product by process claim has been approved by the courts. "[T]he lack of physical description in a product - by - process claim makes determination of the patentability of the claim more difficult, since in spite of the fact that the claim may recite only process limitations, it is the patentability of the product claimed and not of the recited process steps which must be established. We are therefore of the opinion that when the prior art discloses a product which reasonably appears to be either identical with or only slightly different than a product claimed in a product - by - process claim, a rejection based alternatively on either section 102 or section 103 of the statute is eminently fair and acceptable.

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As a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." In re Brown , 173 USPQ 685, 688 (CCPA 1972). Therefore, the burden is shifted to Applicant to come forward with evidence establishing an unobvious difference between the claimed product and the product of "Growth Morphologies".

"Growth morphologies" does not disclose the claimed number of nanotubes in the rope or the basis weight of the claimed felt. When the reference discloses all the limitations of a claim except a property or function, and the examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention the examiner has basis for shifting the burden of proof to applicant as in In re Fitzgerald, 619 F.2d 67, 205 USPQ 594 (CCPA 1980). See MPEP § § 2112- 2112.02. Therefore, since "Growth Morphologies" appears to disclose the claimed ropes and mats/felts in the form of "strings" and "webs", the burden is shifted to Applicant to show that the materials disclosed in "Growth Morphologies" are different from the claimed invention.

8. Applicant's arguments filed 11/16/05 have been fully considered but they are not persuasive. Applicant argues that "Growth Morphologies" does not disclose that 10% or greater are single-wall carbon nanotubes wherein a rope comprises from 50-5000 nanotubes. However, "Growth Morphologies" teaches that all the nanotubes are single wall nanotubes. See page 516, lines 11-12. While "Growth Morphologies" does not teach the number of tubes per rope per se, "Growth Morphologies" does teach strings, (which the examiner is construing to be the same as ropes) which comprise pluralities of single wall tubes. The examiner is unable to determine how many nanotubes are present in a single rope. However, the strings comprise multiple nanotubes.

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When the examiner is unable to determine whether or not the reference inherently possess the claimed property, the examiner has basis for shifting the burden to the applicant. Applicant states that “Growth Morphologies” does not teach the claimed number of nanotubes but the action acknowledges this fact. However, since “Growth Morphologies” appears to produce the same product and uses the same or a very similar process, and is simply silent on the number of nanotubes in the strings or ropes, the examiner has basis for shifting the burden to Applicant to show that the reference does not disclose the claimed properties. Since “Growth Morphologies” comprises a plurality of single wall nanotubes that are in the form of strings, the “Growth Morphologies” reference teaches everything except it is silent as to the number of the plurality of single wall nanotubes and since the examiner is unable to determine whether the number of nanotubes in a particular string is within the range of 50-5000, the burden is shifted to Applicant.

9. With regard to the claimed diameter, “Growth Morphologies” teaches a size of 1.3 nanometers which is equivalent to about 13 Angstroms.

10. With regard to the limitation that the single wall tubes are in the armchair form, since the instant specification teaches that armchair form nanotubes are predominantly formed by the method of laser vaporization which is the same method which is used in Growth Morphologies, it is reasonable to presume that the nanotubes of Growth Morphologies are in armchair form, (see specification pages 7-8.

11. Applicant argues that the felt of “Growth Morphologies” are not electrically conductive. However, since the structure of the claimed felt and the reference felt are the same and the specification does not teach any further steps which are necessary to render the felt electrically

conductive, the conductivity appears to be an inherent property which would necessarily be present once the felt comprising the single wall nanotubes was produced.

12. With regard to the size of the felt, as with the number of tubes which are present in the strings or ropes of "Growth Morphologies", since the examiner cannot physically produce or examine the products of "Growth Morphologies", and since the process used and product produced, i.e., a felt or rope of single wall nanotubes produces by the laser vaporization method, are the same in both the reference and the claimed product, the examiner has a basis to shift the burden to the applicant to show that the number of tubes and therefore the size of the felt is not inherent in the product of "Growth Morphologies".

13. With regard to the double patenting rejections, the rejections with regard 09/810,210 which is now US 6,645,455; 10/391,988 now US 6,899,945 have been maintained. This change is not considered substantive since the issues involved remain the same and the rejections have not been traversed on the merits.

14. The terminal disclaims filed 11/16/05 have been accepted.

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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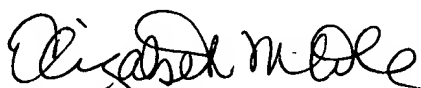
however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth M. Cole whose telephone number is (571) 272-1475. The examiner may be reached between 6:30 AM and 6:00 PM Monday through Wednesday, and 6:30 AM and 2 PM on Thursday.

Mr. Terrel Morris, the examiner's supervisor, may be reached at (571) 272-1478.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

The fax number for all official faxes is (571) 273-8300.



Elizabeth M. Cole
Primary Examiner
Art Unit 1771

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